

Applicant : Marek Kwiatkowski  
Serial No. : 10/071,585  
Filed : February 8, 2002  
Page : 7 of 10

Attorney's Docket No.: 11989-008001 / Q006US1

### REMARKS

Claims 1-3, 6-9, 14-17, 19, 24-28, 30-31, and 34-35 were pending. The Examiner rejected claims 26-28, 30-31, and 34, and objected to claims 1-3, 6-9, 14-17, 19, 24, 25, and 35.

Claims 1 and 27 are amended herein to replace the term "tags" with the term "tag," thus correcting a typographical error. Claim 27 further has been amended to replace the phrase "said second separation function" with the phrase "said second separation tag," which has antecedent basis earlier in the claim. Claim 26 has been amended to replace the phrase "said non-cleaved separation tag" with the phrase "the separation tag that was not cleaved." Similarly, claim 34 has been amended to replace the phrase "the other separation tag" with the phrase "the separation tag that was not cleaved in step (d)." Claim 31 has been amended to recite that the separation medium comprises two different types of separation media. Support for this amendment can be found in Applicant's specification at, for example, page 11, line 16 to page 12, line 7. Thus, no new matter has been added.

In light of these amendments and the following remarks, Applicant respectfully requests reconsideration and allowance of claims 1-3, 6-9, 14-17, 19, 24-28, 30-31, and 34-35.

#### Claim objections

The Examiner objected to claims 1 and 27, stating that "said second separation tags" in line 6 of step (a) should read "said second separation tag." Claims 1 and 27 are amended herein according to the Examiner's suggestion. In light of these amendments, Applicant respectfully requests withdrawal of the objection to claims 1 and 27.

#### Rejections under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 26-28, 31, and 34 under 35 U.S.C. § 112, second paragraph as being indefinite. Specifically, the Examiner stated that there is insufficient basis for the phrase "said non-cleaved separation tag" in claim 26 or the phrase "said second separation function" in claim 27. The Examiner also stated that claim 31 is vague and indefinite because it is unclear how the separation medium recited in claim 30 can comprise a first separation medium

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Applicant : Marek Kwiatkowski  
Serial No. : 10/071,585  
Filed : February 8, 2002  
Page : 8 of 10

Attorney's Docket No.: 11989-008001 / Q006US1

and a second separation medium. Finally, the Examiner stated that there is insufficient antecedent basis for the phrase "other separation tag" in claim 34.

Applicant respectfully disagrees. To expedite prosecution, however, Applicant has amended claim 26 to recite that step (e) includes eluting an oligonucleotide lacking the separation tag that was not cleaved. Applicant also has amended claim 27 to replace the phrase "said second separation function" with the phrase "said second separation tag." In addition, Applicant has amended claim 31 to recite that the separation medium of claim 30 comprises two different types of separation media. Finally, Applicant has amended claim 34 to recite that step (f) includes cleaving the separation tag that was not cleaved in step (d). Thus, claims 26-28, 31, and 34 are definite.

In light of the above, Applicant respectfully requests withdrawal of the rejection of claims 26-28, 31, and 34 under 35 U.S.C. § 112, second paragraph.

#### Rejections under 35 U.S.C. § 102

The Examiner rejected claim 30 under 35 U.S.C. § 102(b) as being anticipated by the Kwiatkowski *et al.* reference (*Nucl. Acids Res.* 24:4632-4638, 1996). The Examiner stated that the Kwiatkowski *et al.* reference teaches a plurality of oligonucleotides (*e.g.*, oligonucleotide 16 in Figure 1) that each have a first separation tag (*i.e.*, a CPG-based support) attached to a first end of the oligonucleotide and a second separation tag (*i.e.*, a disiloxyl group) attached to a second end of the oligonucleotide, wherein cleavage of the second separation tag yields an oligonucleotide having a 3' hydroxyl moiety as recited in step (a) of present claim 30. The Examiner further stated that the Kwiatkowski *et al.* reference teaches that since the oligonucleotide is bound to a reversed-phase Pep RPC column for purification, the reference discloses a separation medium to which the plurality of oligonucleotides are adhered as recited in step (b) of present claim 30. Thus, the Examiner concluded that the Kwiatkowski *et al.* reference teaches all of the limitations of claim 30.

Applicant respectfully disagrees. Applicant's specification at page 5, lines 12-14 defines a "separation tag" as a chemical group or moiety bonded to an end of an oligonucleotide that allows the oligonucleotide to be separated from other oligonucleotides that lack such a tag.

Applicant : Marek Kwiatkowski  
Serial No. : 10/071,585  
Filed : February 8, 2002  
Page : 9 of 10

Attorney's Docket No.: 11989-008001 / Q006US1

Present claim 30 requires a bifunctional oligonucleotide having a first separation tag at a first end of the oligonucleotide and a second separation tag at a second end of the oligonucleotide. The Kwiatkowski *et al.* reference discloses only monofunctional oligonucleotides that have a single separation tag on one end of the oligonucleotide. Contrary to the Examiner's assertion, compound 16 shown in Figure 1 does not represent an oligonucleotide having a separation tag at each end. Rather, compound 16 is a CPG bead that has been activated by aminopropylsilanizing, derivatized by addition of a polythymine tract and a hydroxyalkyl group, and coupled to a disiloxyl linker, through which an oligonucleotide can be linked to the derivatized CPG support. The aminopropylsilanized CPG bead attached to the 5' end of the polythymine tract is not a separation tag as defined by Applicant's specification. Rather, the CPG bead ultimately serves as the support for oligonucleotides synthesized on the disiloxyl linker. In addition, cleavage of the disiloxyl linker will not result in a 3' hydroxyl group at the 3' end of the polythymine tract. Thus, compound 16 of the Kwiatkowski *et al.* reference does not anticipate the presently claimed composition.

Moreover, compound 17 of the Kwiatkowski *et al.* reference does not anticipate the presently claimed composition. In particular, the oligonucleotide of compound 17 is monofunctional in that it is linked to one separation tag – the DMTr group at its 5' end. The disiloxyl linker at the 3' end of the oligonucleotide is not a separation tag, and cleavage of the disiloxyl linker would not result in a hydroxyl group at the 3' end of the oligonucleotide. Thus, the Kwiatkowski *et al.* reference does not disclose a composition as recited in present claim 30. As such, the Kwiatkowski *et al.* reference does not anticipate present claim 30.

In light of the above, Applicant respectfully requests withdrawal of the rejection of claim 30 under 35 U.S.C. § 102(b).

#### Allowable claims

The Examiner stated that claims 1-3, 6-9, 14-17, 19, 24-28, 34, and 35 appear to be allowable if the above objections and rejections under 35 U.S.C. § 112 are overcome. Applicant respectfully submits that the objections and rejections have been overcome, and requests allowance of the claims.

Applicant : Marek Kwiatkowski  
Serial No. : 10/071,585  
Filed : February 8, 2002  
Page : 10 of 10

Attorney's Docket No.: 11989-008001 / Q006US1

**CONCLUSION**

Applicant submits that claims 1-3, 6-9, 14-17, 19, 24-28, 30-31, and 34-35 are in condition for allowance, which action is respectfully requested. The Examiner is invited to telephone the undersigned agent if such would further prosecution.

A Petition for One Month Extension of Time is attached hereto. Please apply the \$60 charge for the extension of time, as well as any other charges or credits, to deposit account 06-1050.

Respectfully submitted,

Date: April 15, 2005

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